

**Title:** Pakscan 3 Wireless: Aerial Specification

**Circulation Copy:**

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**Revision 1**

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Prepared

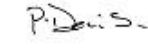
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**Synopsis Only:**

**Revision Notes:**

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**Synopsis:**

This specification defines the requirements for a 2.4GHz aerial for use with the Pakscan 3 Wireless system. The aerial will be suitable for both WT and EP applications.

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## 1. Introduction

There is a requirement for a 2.4GHz band aerial, for use with industrial wireless networking, with approval for use in potentially explosive atmospheres. (ATEX, FM, CSA hazardous area certification)

The aerial will mount in a standard conduit entry with an M25 thread.

## 2. Functional Requirements

- 1) The aerial shall be designed to operate over the 2.4GHz ISM band. (i.e. from 2.400 GHz to 2.4835 GHz)
- 2) The aerial shall mount in a PTFE cover tube manufactured to Rotork drawing 49725
- 3) The aerial shall have 200mm of RG174 cable connected.
- 4) The RG174 cable will be terminated with an SMA male plug (normal polarity).
- 5) The horizontal radiation pattern shall be omni-directional +/- 1dB. (It is intended that the aerial be mounted with the conducting elements vertical, giving a vertically polarised electric field component.)
- 6) The nominal gain should be 0dBd.
- 7) The nominal feed impedance shall be 50 ohms.
- 8) The SWR is to be less than 1.5:1 over the frequency range 2.400 GHz to 2.4835 GHz.

## 3. Environmental

### 3.1 Temperature

-40°C to +70°C Actuator Ambient. Assume 10°C temperature rise internally

### 3.2 Vibration

Plant Induced -The equipment is to be suitable for use in environments where the cumulative level of all vibration within the frequency range 10 - 1,000 Hz. is less than 1g rms.

### 3.3 Shock

Functional after 5 positive and 5 negative impacts, of half sine wave pulses, applied in each perpendicular axis. Pulse to be 5g for 11ms duration with a10% pre & post pulse. Tests to be carried to BS EN 60068-2-27.

### 3.4 Seismic

2g acceleration over a frequency range of 1 to 50Hz if operating during and after event, 5g if it is required to maintain structural integrity.